

**AMENDMENT TO THE CLAIMS**

The listing of claims, will replace all prior versions, and listings, of claims in the application.

**LISTING OF CLAIMS**

1. (Currently Amended)      A method of automation performed on a semiconductor manufacturing tool, comprising the acts of:
  - (a) automatically running a set of designed experiments on the tool;
  - (b) collecting data resulting from running the experiments;
  - (c) time-scaling the collected data to make the collected data a linear function of time;
  - ~~(e)~~(d) creating a model based on the time-scaled collected data; and
  - ~~(d)~~(e) using the model to control the tool.
2. (Originally presented)      The method of claim 1, wherein act (b) is performed automatically.
3. (Originally presented)      The method of claim 1, wherein act (c) is performed automatically.
4. (Originally presented)      The method of claim 1, further including:  
automatically creating the set of designed experiments for the tool.
5. (Originally presented)      The method of claim 1, further including:  
importing one or more designed experiments from an external system.
6. (Originally presented)      The method of claim 1, further including at least one of:  
importing data collected by running at least one experiment on an external system; and  
importing data collected during at least one previously run experiment.
7. (Originally presented)      The method of claim 6, further including:  
automatically creating a model based on the imported data and user input.

8. (Currently Amended) The method of claim 6, further including:

automatically creating a model based on the time-scaled collected data, the imported data and user input.

9. (Originally presented) The method of claim 1, further including:

allowing a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected.

10. (Currently Amended) The method of claim ~~9~~<sup>1</sup>, further including:

automatically generating the design set of experiments based on the user selected parameters and set of data to be collected.

11. (Originally presented) The method of claim 1, further including:

collecting the data based on a wafer-by-wafer basis.

12. (Currently Amended) A method of automation performed on a tool to manufacture devices, comprising the acts of:

(a) automatically creating a set of designed experiments;

(b) automatically running the set of designed experiments on the tool;

(c) automatically collecting data resulting from running the experiments, wherein the data are collected on a wafer-by-wafer basis;

(d) time-scaling the collected data to make the collected data a linear function of time;

~~(d)~~(e) automatically creating a model based on the time-scaled collected data; and

~~(e)~~(f) using the model to control the tool.

13. (Currently Amended) A method of automation performed on a tool to manufacture devices, comprising the acts of:

(a) automatically running a set of designed experiments on the tool;

- (b) automatically collecting data resulting from running the experiments;
  - (c) time-scaling the collected data to make the collected data a linear function of time;
  - ~~(e)~~(d) creating a model based on the time-scaled collected data and imported data; and
  - ~~(d)~~(e) using the model to control the tool.
14. (Originally presented) The method of claim 13, wherein the imported data are from an external system.
15. (Originally presented) The method of claim 14, wherein the imported data are from previously run experiments.
16. (Currently Amended) A system of automating a semiconductor manufacturing tool, comprising:
- (a) a DOE system configured to automatically create a designed set of experiments for the tool and to time-scale the collected data to make the collected data a linear function of time;
  - (b) a controller configured to automatically run the created set of experiments on the tool and collect data resulting from running the experiments; and
  - (c) a modeling environment configured to create a model based on the time-scaled collected data, wherein the controller is further configured to control the tool based on the created model, and wherein the DOE system, controller and modeling environment are integrated with each other.
17. Canceled
18. (Originally presented) The system of claim 16, wherein the DOE system is further configured to import one or more designed experiments from an external system.

19. (Originally presented) The system of claim 16, wherein the DOE system is further configured to import at least one of data collected by running at least one experiment on an external system and data collected during at least one previously run experiment.
20. (Originally presented) The system of claim 19, wherein the DOE system is further configured to create a model based on the imported data and user input.
21. (Currently Amended) The system of claim 19, wherein the DOE system is further configured to create a model based on the time-scaled collected data, the imported data, and user input.
22. (Originally presented) The system of claim 16, wherein the DOE system is further configured to allow a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected.
23. (Currently Amended) The system of claim ~~22~~16, wherein the DOE system is further configured to generate automatically the design set of experiments based on the user selected parameters and set of data to be collected.
24. (Originally presented) The system of claim 16, wherein the controller is further configured to collect the data based on a wafer-by-wafer basis.
25. (Currently Amended) A computer readable medium for storing instructions being executed by one or more computers, the instructions directing the one or more computers for automatically generating design of experiment (DOE), the instructions comprising implementation of the acts of:
- (a) automatically running a set of designed experiments on the tool;
  - (b) automatically collecting data resulting from running the experiments;

(c) time-scaling the collected data to make the collected data a linear function of time;

~~(e)~~(d) creating a model based on the time-scaled collected data; and

~~(d)~~(e) using the model to control the tool.

26. (Originally presented) The medium of claim 25, further including the instructions for implementing the act of:

automatically creating the set of designed experiments for the tool.

27. (Originally presented) The medium of claim 25, further including the instructions for implementing the act of:

importing one or more designed experiments from an external system.

28. (Originally presented) The medium of claim 25, further including the instructions for implementing at least one act of:

importing data collected by running at least one experiment on an external system; and

importing data collected during at least one previously run experiment.

29. (Originally presented) The medium of claim 28, further comprising the instructions for implementing the act of:

automatically creating a model based on the imported data and user input.

30. (Currently Amended) The medium of claim 28, further including the instructions for implementing the act of:

automatically creating a model based on user input, the time-scaled collected data and the imported data.

31. (Originally presented) The medium of claim 25, further including the instructions for implementing the act of:

allowing a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected.

32. (Currently Amended) The medium of claim 31~~25~~, further including the instructions for implementing the act of:

automatically generating the design set of experiments based on the user selected parameters and set of data to be collected.

33. (Originally presented) The medium of claim 25, further including the instructions for implementing the act of:

collecting the data based on a wafer-by-wafer basis.

34. (New) The method of claim 1, wherein the tool is a Chemical-Mechanical-Planarization tool.

35. (New) The system of claim 15, wherein said tool is a Chemical-Mechanical-Planarization tool.